GARDEN AND FOREST.

PUBLISHED WEEKLY BY

THE GARDEN AND FOREST PUBLISHING CO.

OFFICE: TRIBUNE BUILDING, NEW YORK.

Conducted by . . . . . Professor C. S. SARGENT.

ENTERED AS SECOND-CLASS MATTER AT THE POST-OFFICE AT NEW YORK, N. Y.

NEW YORK, WEDNESDAY, JUNE 10, 1896.

TABLE OF CONTENTS.

PAGE.

EDITORIAL ARTICLES:—Where Competitive Examination may Fail. 231
Daffodils in the Grass. 231
A Botanical Journey in Texas.—V. . . . . *E. N. Plank.* 232
The Flora of the California Coast Range.—III. . . . . *Carl Purdy.* 233
The Reproductive Powers of our Forests. (With figure.) . . . . *L. C. Corbett.* 234
PLANT NOTES 234
CULTURAL DEPARTMENT:—Notes from the Herbaceous Border. . *Robert Cameron.* 236
Flower Garden Notes . . . . . *E. O. Orpet.* 237
Herb Robert. . . . . *G. A. Woolson* 237
CORRESPONDENCE:—Notes from West Virginia. . . . . *Danske Dandridge.* 237
Some Rare Erythroniums. . . . . *Carl Purdy.* 238
The Increase of Redwood Forests. . . . . *Carl Purdy.* 238
A Wild Garden. . . . . *B. L. P.* 238
RECENT PUBLICATIONS 239
NOTES. 240
ILLUSTRATION:—Second-growth Chestnut-trees, in West Virginia, Fig. 34. . . . 235

Where Competitive Examination may Fail.

ABOUT a month ago the office of landscape-gardener and forester for the city of Philadelphia was to be filled, and the Board whose duty it was to name the man decided to open the place to competitive examination instead of making it a subject of personal patronage. Precisely what the duties of a city landscape-gardener and forester may be in Philadelphia we do not know. He probably has charge of the street-trees and superintends the construction and planting of the small parks, and if these are his functions the examination would give a fair idea of the knowledge of the applicant in this particular field. There were questions in surveying, in drawing as applied to landscape-gardening, and in road-building. No attempt was made to ascertain how much the applicant knew of general horticulture, but there were twelve carefully prepared questions relating to trees and the way to plant, protect and care for them, so that a comparison of the answers given by the nineteen candidates would, no doubt, enable good judges to select the man whose knowledge on this subject was the most comprehensive and thorough.

The only question relating directly to landscape-gardening was the following: "What is the chief point to be considered in laying out the grounds for a public square?" This might furnish the text for an essay which would enable the judges to learn some of the views of the writer on the general subject of designing small urban parks, but little more than this could be hoped for. Indeed, it would be a difficult task to discover by a written examination whether a man has creative artistic talent. If a city wished to make an intelligent selection of an architect to design a municipal building it would not choose the man who could answer the most questions about architecture. One who wished a landscape painted would hardly think of selecting an artist by competitive examination of this kind. But it requires just as much constructive skill to adjust a piece of ground to varied public uses as it does to make a building which in all its parts shall be adapted to a given purpose, and it requires as much taste, at least, to prepare this ground so that it will make an impressive appeal to the imagination through the eye as it does to make a beautiful building. By an examination we can ascertain whether a man is a good critic in any branch of art, but it will give no adequate idea of his creative capacity. The proper way to judge of a landscape-architect is by his works, just as we judge of a landscape-painter, or a sculptor or a poet.

Again, if we wish to be informed as to a man's executive faculty—that is, his capacity for administration, for managing men and getting things done in the right way—we naturally study what he has done, or observe what he is doing, rather than cipher up what percentage of his answers to certain questions is correct. A competitive examination conducted by eminent experts was held in one of our large cities some years ago, and the candidate whose papers were easily first in quality was appointed chief gardener of an extensive park system. He had a thorough knowledge of the shrubs and trees and plants used in our parks, he knew how to propagate them and how to cultivate them, but after his appointment it was evident that he had no idea of proper grouping and arrangement, no refinement of feeling, no taste for simple natural beauty. Besides this, he lacked the power of organization and command, and he made a miserable failure.

All this means that while the service in public parks should certainly be kept out of politics, and no one should be admitted to subordinate positions without examination, there is no certainty of securing an efficient administrative head of any departmental work by any such competition. Wherever we need moral power, the force of will, the ability to control others, we must select a man who has displayed these faculties in other positions. And the same is true where artistic talent is in question. A man may be able to write an instructive essay on landscape art without possessing a particle of faculty for original design, just as one may be a competent critic of architecture or sculpture or painting without any talent for invention or construction in either of these arts.

Daffodils in the Grass.

THE different varieties of Narcissi are beautiful anywhere, whether grown in large masses for commerce or in beds in the flower garden, but they never are more attractive than when seen among the grass along a wood border. On the 14th of April a conference on Daffodils, with an exhibition, was held in Regents Park, London, and Messrs. Barr & Son had planted thousands of Narcissus-bulbs in groups of from 150 to 200 of each variety in the turf of the park the autumn before, so that they would be in bloom for this occasion, and the display thus made was said to have been a most interesting feature of the meeting. The cheapness of these bulbs, the ease with which they can be made to bloom, the fact that they can be grown anywhere, on lawns as well as in flower-beds, their satisfying variety in form and color, have made them the most popular outdoor flower in England, and they are rapidly increasing in public favor in this country, although comprehensive collections of all the different sections, including the expensive novelties, are not yet common here. And yet we can grow, with proper care, quite as beautiful Daffodils in this country as any which England can show. Unfortunately, however, our climate is such that not so many of the different varieties can be naturalized in the grass. The Poet's Narcissus, different varieties of the Star section, the Jonquils and some of the Trumpets can be made at home in the grass. Almost any of them will bloom for a season or two, but which particular ones will grow persistently and increase from year to year no one can tell until they have been tested in different soils. Most of the varieties like some cool moist place and in well-drained meadows which are covered with snow most of the winter, and where the soil is a trifle stiff many of them will be sure to succeed.

In the admirable paper of Mr. William Robinson, read before the conference to which we have alluded, he speaks of one menace to the best effect of Narcissi in the grass; and that is the practice of scattering them evenly over a

meadow or pasture. Such monotonous planting destroys all sense of relief and repose. Where one square rod is just like all the rest the eye soon wearies and craves something with distinct features and variety of expression. This suggestion should be heeded by all who attempt the naturalization of such plants as Narcissus, Scilla campanulata and other bulbous plants in the turf. Just as Water-lilies are much more effective when they are planted in groups with a stretch of smooth water beyond them, so these Daffodils are infinitely more beautiful when there are reaches of grass between the different masses. For this turf-planting does more than furnish individual flowers for our delight. It ought to make a charming picture in the distance. If the bulbs are planted along the border of a meadow, closely here, more openly there, resembling somewhat a picturesque shore-line with capes and bays and detached islets about which the smooth turf flows like a lake, the picture will have some artistic meaning. Mr. Robinson well says that a passing cloud will often give a good form for an isolated group and will be specially instructive since it is more compact toward the centre, as groups of Narcissi should be in the grass.

We should like to see more fields and wood borders in this country garnished with flowers in this way. Some of our native weeds naturally arrange themselves into pictures of this kind, but most of them are destructive of the grass crop. The leaves of Daffodils, however, ripen before the grass is fit for mowing, so that the bulbs will be ready for another year's bloom before the machine passes over them. They work trifling harm to the hay crop and yield a harvest of beauty whose value cannot be estimated.

A Botanical Journey in Texas.—V.

EARLY on the morning of the second day of July I left El Paso for a visit to Mount Franklin. This is a vast longitudinal pile of rocks upon gravel and sand, and of sand and gravel upon rocks, and of mud deposits upon both, the whole resting upon granite, which on one side of the mountain is reddish in color, while on the other side, and nearer the river, it approaches white. In some places the granite seems to have intruded into the other material. Mount Franklin itself is nearly isolated, most of the range, of which it appears to be a remnant, having gone down the river to assist in filling the Gulf of Mexico, or having been used nearer home to fill the old lake-like expansion of the river.

Measurements made by Captain Ruhlen, of the United States army, give the mountain an elevation above the level of the Court-house yard of 3,000 feet, and of 6,700 feet above the level of the sea. It is, therefore, one of the highest mountain peaks of Texas. The stories told of the ruggedness of the slope and its difficulty of ascent were fully confirmed by experience. I found no springs of water, and for ten hours wandered in thirst over the mountain. Once in western Kansas I passed thirty hours without food, though with plenty of creek-water to drink, and the recollection of this hardship consoled me, so philosophy triumphed, and my work was probably as well done and as many plants were collected as there would have been if I had been fully watered and fully fed.

Since I visited the mountain to see and to collect its flora and search for rare and unknown plants, the more difficult and unusual way of ascent was taken through a precipitous ravine half-way up the mountain, thence to a different rock formation, and along the crest of the mountain until the topmost crag was reached.

Standing on the mountain-top and looking around for a new plant, the well-known habit of the handsome evergreen Sumach, Rhus virens, showed itself at the base of a crag just below me. It is evidently more daring and climbs higher than any of its congeners. R. microphylla and R. trifoliata are lower down on the mountain. At my feet was the humble Paronychia Jamesii and Selaginella rupestris in the crevices of rocks. Lechuguilla, Agave heteracantha, is by far the commonest tall plant upon the high mountain, and furnishes it with its visible green. Candle-wood and Solat are not far below it, all of them ascending to about 6,000 feet. The rather rare and extreme western Pepper-Grass, Lepidium lasiocarpum, is common on the mountain, and only there, so far as I have observed it. It is a low apetalous species with hairy fruit, as its specific name indicates.

The most interesting shrub on the mountain is a Lippia with rounded crenated leaves and spikes of small white flowers. It is handsomer than L. ligustrina, and fully equals that species in the strength and sweetness of its perfume. The general habit of the shrub is like that of Salvia ballotæfolia. It is also to be found lower down among the foot-hills. Malvaceous plants are common higher up as well as lower down. Some of them are very handsome. With the rest, Abutilon parviflorum, with small yellow flowers, is abundant, especially in the lower ravines. Pectis angustifolia and P. prostrata are common on the mountain slopes and among the foot-hills. Both species are handsome little plants and lemon-scented. The former extends northward to central Kansas, where its human neighbors call it, by way of nickname, "Camphor-plant."

More species of Boerhaavia grow on and around the mountain than I have seen elsewhere. They all are semi-erect spreading plants, peculiar in their habit, their manner of growth, their flowers and fruit. Each is very like the other, and to know one of the species is to know most of them. A low-growing and handsome Asclepias is abundant on the mountain. It is probably A. uncialis, as it is not more than three or four inches tall. Torrey's Lycium, L. Torreyi, a tall shrub, is very abundant around El Paso. Its purplish flowers are followed by small red berries, which are used for tarts and jellies. There is another Lycium here, a much smaller species, with whitish flowers.

A curious and interesting plant bearing the rather pleasant name of Janusia gracilis is abundant in the ravines of the mountains, ascending to an altitude of, perhaps, a mile. It is found also among the foot-hills. It is a low, slender climber with yellowish flowers, which are usually borne in pairs. They are succeeded by samara-like fruits, which readily distinguish the species. It belongs to the family of plants which keep bright the memory of the old Italian botanist, Malpighi, the author of the *Anatomy of Plants* and the father of microscopy. Of larger shrubs on the mountain and among the foot-hills, not already noticed, a Cercocarpus, Fallugia junco, Crown of Thorns (Kœberlinia) are present, and Ptelea angustifolia, as distinct from its congener as nature ever makes it, which is not saying very much for its specific rank.

In all regions where dryness of the atmosphere produces aridity of the soil the vegetation is largely limited to quickly growing, annual, deeply rooted bulbous plants and woody perennial plants. In the short rainy season the annuals quickly spring up, blossom, perfect their seeds, and die. The seeds sleep in the soil until the rain comes again, when they repeat the processes of their ancestors. The bulbs, too, sleep, but they are always ready to grow. Within three days after a rain the ground may be literally white with flowers of Cooperia, where not an individual was to be seen before the coming of the rain. There is always water in the soil, though it may not be measured. Deeply rooting bulbs and the roots of woody plants are able to reach that water in sufficient quantities to enable them to live and to keep a slow life. The decay of their worn-out roots adds constantly, not only to their stock of pabulum, but also to the stock of fluid to infuse it. The living everywhere are drawing their subsistence from the dead.

Texas, from near the Gulf to New Mexico, is the native place of at least five species of Ephedra, a remarkable genus of gretaceous Gymnosperms. All of them are low, humble shrubs, with green and sometimes shreddy bark, and few or no leaves. We wonder that Nature should stop to make such strange freaks of vegetation. We wonder

still more that she should make them so that we literally class them with the mighty Redwood and Sequoia. People who associate strange properties with strange appearances ascribe all sorts of remedial effects to these plants. Most of those are without real foundation. The largest and most peculiar of our species, Ephedra trifurca, is very common round El Paso on the mountain and on the mesas. This species sometimes makes itself into a neat little miniature tree, with a clean trunk fifteen to twenty inches long, two to three inches in diameter, and with a round and symmetrical head of branches. People about El Paso and in New Mexico call this species the "Brigham Young Weed."

Larrea tridentata (L. Mexicana) is by far the commonest shrub in this locality among the hills. A bath in a warm infusion of its leaves and twigs is said to be a remedy for rheumatism. In this region plants that depend on rain for their growth have become very easy and slack in their manners and observe no set time to flower and fruit. On the thirteenth day of June the hills around El Paso were yellow with flowers of Larrea. Three weeks of rainless weather followed, and the thousands of individuals of that species showed hardly a flower. Other rains came, and in a few days the hills were again yellow with a new crop of flowers.

Western Texas is full of plant wonders, and no plant here is more peculiar and attractive in its own way than the Screw Bean, Prosopis pubescens. As a shrub this species outdoes its reputed cousin Mesquit, P. juliflora, but the latter far excels the former as a tree. The fruit of the Screw Bean, as its nickname indicates, is a departure in fruit forms, and readily shows the species. Its short, clustered pods are twisted into screw-like coils and again coiled. In the future some daring botanist will again separate generically P. pubescens from P. juliflora, whose pods, though clustered, are straight and sometimes eight to twelve inches long and containing from six or less to twenty-four or more beans. Uniting these species under the same genus was a complete waiver of the form of the fruit as a generic character.

Euphorbia Fendleri, E. lata and other rare species of that genus grow on the mountain, with several Erigonums, Galiums, a large-fruited Yucca, a strange shrub, and other species.

La Junta, Colo. *E. N. Plank.*

The Flora of the California Coast Range.—III.

CUPRESSUS MACNABIANA AT HOME.

SIX miles south-east of Ukiah is Red Mountain, and its bold dome, rising 2,300 feet above the sea, is visible from almost any point in the thirty miles of valley which stretches north and south from its base. It is easily distinguished from the surrounding mountains of nearly as great an altitude, by the brick-red soil on all exposed places, which shows enough even in the brushy portions to warrant the name. It is a great mass torn from some other geological formation and set down in a great chain of chemise-covered mountains. It differs from its neighbors no less in flowers and trees than in soil, and is a fine example of these isolated sections which are a feature of our state. Forty miles to the east, across two higher ranges, is a region in which the geological conditions and flora which distinguish Red Mountain are reproduced on a greater scale. The mountain is almost completely detached from the main range by a stream which, rising on the north-west face, completely encircles and drains the mountain.

The eastern side of Red Mountain is covered with the most curious forest I have ever seen. A body of Cupressus Macnabiana, about a half-mile square, and scarcely mixed with any other tree, covers it completely. The trees are only from twelve to twenty feet high, as a rule, but, like the miniature trees of the Japanese gardeners, they have all of the appearance of great age. Old and gnarled, tough and twisted, covered with moss, and with limbs broken, they look like the old forests of Cedar of Lebanon as they are pictured. A forest a hundred feet high, looked at through the large end of a telescope, would give the same impression. A fire has swept through one side, and the old trunks, standing black and naked, aid the deception. Only the surrounding objects by which to aid the sight, keep one from being quite carried away by the deception. These trees, dwarfed so strangely by the arid soil and bleak climate, are very old.

The west face of the mountain is no less curious. Here the Cypress forms a dense thicket, from six or eight feet high in the open hills, to fifteen feet high in the gullies, and stretching over the whole mountain-side till it breaks into cliffs at the cañon. Where the fires have burned over, the little seedlings, are coming up, but in no such profusion as I saw in the thickets of Cupressus on the coast. Here, at the most, there would be one tree in three or four feet. The little seedlings having the soil to themselves, are of a fine green and quite shapely, and many grow into handsome trees. A few seeds carried down the stream to gravelly flats in the valley have formed an open grove of specimens as handsome as any in a park of perfect pyramidal form and very broad at base. Handsomer trees are seldom seen.

Many of the lesser shrubs and flowers are quite as distinctive of Red Mountain as the Cypress. One Ceanothus in particular I have never observed except in such soils. It is much like a Holly in leaf, and forms a low bush. The flowers are white. The stream which flows down the east side has a broad bed heavily grown with a coarse grass which retains the soil and furnishes a home for many flowering plants. For fully a half-mile Lilium pardalinum, in a large spotted form, grows in abundance and forms great clumps. As I have seen it in July, the stem four to seven feet high and the cañon fairly filled with a wavy mass of the grand recurved red and gold blossoms, I thought it the finest floral sight I had ever seen. Our common Columbine, Aquilegia truncata, is a fine plant and the parent of some good garden plants. It flowers in May and June. In the grass and on the wet rocks of the numerous little falls a form with viscid leaves grows in profusion, and, unlike the type, blooms constantly through the summer season. The flowers are more of an orange color than the type. A variety of Stachys, with tomentose leaves and a pleasant fragrance, is almost as common, and in the wettest places one can see large beds of an Orchid much like a small purple and brown Lady's slipper. This is Epipactis gigantea, a pretty species well worth cultivation. A large clump graces my Fern-bed, and rapidly increases, blooming freely every year.

Few Ferns grow here, but a Pellæa (P. densa) is abundant in the loose rock which has broken from the cliffs above, and in the rock crevices as well. It grows in large bunches, and the small dissected fronds are quite handsome when the winter rains wake them from the long summer sleep; very delicate, too, the light green new growth resembling a Maiden-hair. Calycanthus occidentalis is not uncommon in the Coast Range and is one of our finest waterside shrubs. It is rather prettier than the eastern C. floridus, and, like it, the bark, leaf and fleshy chocolate-colored flowers have a pleasant odor. It especially likes the clayey soil of this cañon, and in some localities the growth is ten to twelve feet high and completely fills the gulch. In clefts of the rock a rare Brodiæa grows quite out of its range, for it is common forty miles eastward. The flowers are white, and it prefers the courses of streams.

The higher slopes are also rich in rare plants. One of the most attractive is Dendromecon rigidum, a shrub from two to eight feet high, slender, with light lance-shaped leaves and a blossom almost exactly like a light-colored Californian Poppy, except in size. This beautiful Tree Poppy in our region is confined to high altitudes. A well-developed bush is not soon to be forgotten. Morning Glories are everywhere in our state. A very common one with good-sized white flowers grows in grain fields and is a troublesome weed, pretty as it is. Red Mountain, in

Morning Glories, as in everything else, is odd, and the creeping form which I saw in bloom one morning in May had halberd-shaped leaves densely clothed with woolly hairs and a fine white flower. The stem crept about a foot.

Ukiah, Calif. *Carl Purdy.*

The Reproductive Powers of Our Forests.

AT the present time the guard ranges of the Alleghany Mountains, which extend into Monongahela County, West Virginia, are covered with a mixed deciduous forest of second-growth trees. This is one of the best examples that have come under my personal observation of the natural power of forest reconstruction. During the early half of the present century this region, embracing several thousand acres lying along the north bank of the Cheat River, was the seat of an active iron-making industry. The mountains afforded a bog ore which was accessible and of great value. The mountain slopes were then heavily wooded, and as the iron industry became established a demand for charcoal was created, and to meet this demand the woods were harvested and converted into charcoal. This industry began about 1789, and was most active from 1822 to about 1852, and continued in a small way until in 1868. The largest proportion of the timber removed for charcoal purposes was cut during the most active period of the industry and before the middle of the century.

As soon as the charcoal burning became unremunerative from the exhaustion of the timber supply and the substitution of coke for charcoal in the reduction of ore, these lands, which were too steep and rugged for profitable agriculture or grazing, were allowed again to fall into the hands of Mother Nature. It is true that fire has done much injury from time to time, but even with the adverse conditions of soil, exposure and frequent fires, there is to-day upon these mountains a forest of second-growth Chestnut, Poplar and Oak worth many times the value of the land at the time the iron furnaces closed—a convincing example that our forests will reproduce themselves. This we are told is all well enough for the moist mountain districts of the Alleghanies, but will not hold in the deforested areas of Michigan, Wisconsin and Minnesota. There is no ground for this argument, for when the forests were removed no rational system of reforestation was attempted. Even the protection of the area from fire has usually been neglected, and this alone will suffice to explain why the land stripped of its forest-cover still remains bare. Natural reproductive powers have not been allowed an opportunity to assert themselves. Trees cannot grow so long as fires are allowed to run periodically over the exploited tracts; what might take place, were they suppressed and prevented, is another question upon which some light is thrown in the following remarks by Mr. H. B. Ayers, of Carlton, Minnesota, on Forest Fires*:

Even men of intelligence and prominence in the lumber business have said, "Why prevent fire? Pine will never come in again after the marketable timber is once cut." This assertion needs the strongest possible denial; the men who make such an assertion deserve ridicule. They were looking for saw-logs, and could not have looked for much else, for loggers in cutting often leave on an acre a hundred thrifty and vigorous young Pines from four to ten inches in diameter and from twenty to a hundred feet high after the log-timber is cut, and on pine-stump land that has escaped fire three years thousands of little Pine seedlings may be seen springing up. In order to be able to refute such misstatements utterly I have here the minutes of the exact location where young Pines in excellent condition for timber-growing may be seen, and right by may be seen burnt land cut the same year that could not be put into a condition as promising for timber for less than twenty dollars an acre. In fact, so favorable a soil, mulch and shade can hardly be made at once on that burnt land at any price. Several such acres on (sections) 16, 56, 22 were staked off and the trees counted; on one from which 32,000 feet had been cut three years before were thirty-two thrifty sapling White Pines, eight to eleven inches in diameter and thirty to eighty feet high; ten Poplar, eight to fourteen inches in diameter and sixty feet high; 1,600 Poplar sprouts, one-half to one inch in diameter and five to twelve feet high; a light underbrush of Hazel and Vine Maple; and under all this were 1,267 little White Pine seedlings two years old and four to six inches high. Another acre on the same section had 200 trees of White and Norway Pine averaging eight inches in diameter and forty-five feet high. Are not these worth saving?

This is a specific example of what may be expected from one of the families of trees which it is most difficult to perpetuate. Pines, as a rule, grow only from seeds; they cannot be managed under the coppice system, yet this single observation, carefully carried out and recorded, is sufficient to set the most skeptical to thinking.

In the deciduous forests which occupy the outlying ranges of the eastern mountain systems the problem is less difficult, as most of the desirable species readily reproduce themselves from the stump. The accompanying illustration (see page 235) shows what may be accomplished if only a little care is given, the forest represented being of Chestnuts about forty years of age. I have other photographs to represent the reproductive powers of the Ash, Magnolia and other species.

The history of this region clearly shows the influence of the rise and decline of the iron industry on the forest, the benefit of the substitution of coke for charcoal and the beneficial results in the way of reforestation when such lands are simply left to themselves and partially protected from fires.

Agric'l Experiment Station, West Virginia. *L. C. Corbett.*

* *Minnesota State Horticultural Society Report for 1895*, pages 443-9.

Plant Notes.

TOXYLON POMIFERUM.—Since the recent rains the large leaves of the Osage Orange-trees in Central Park have expanded to nearly their full size and have begun to take on the gloss which is characteristic of them, and few trees of their size have a more pleasant expression at this season. Downing says of this tree that it is rather too loose in the disposition of its branches to be called beautiful, but it often grows in a compact spreading shape, and owing to the size and the abundance of its leaves it casts a dense shade. Although it grows in parts of the Indian Territory and Texas where the temperature is comparatively high, it will flourish as far north as New England, and, in spite of the fact that it has been developed in the region of abundant rain, it also flourishes on the dry prairies of the west. Besides its hardiness, the tree grows rapidly and is subject to few diseases and insect enemies, so that it is, altogether, desirable for ornamenting parks and gardens. The pistillate trees have large orange-like fruits, which add to their beauty in the autumn, and it has a certain half-tropical or foreign air that arrests the attention. It is easily grown from seeds and cuttings, and is much used for hedges. In this latitude some of the trees reach a height of forty feet, and with almost as great a spread of branches, but in the valley of the Red River they grow sixty feet high, with a trunk two or three feet in diameter.

VIBURNUM MACROCEPHALUM.—This plant bears larger snowballs than either of the other species or garden forms which bear cymes of pure white sterile flowers. In an early volume of GARDEN AND FOREST Mr. Hemsley wrote that wild specimens of Viburnum macrocephalum were sent to him by different collectors in China, in which but few of the outer flowers were neuter, but the plant is only known here in its sterile form, and it has been grown in England ever since Fortune discovered it in the gardens of Shanghai. The flower-clusters are as large as those of Hydrangea hortensis. It differs somewhat in habit from the other Snowballs, being rather low, of rigid and widespread branches. It is hardy enough to survive the winters in New England, but it does not flourish there as it does in Philadelphia and southward, where the flower-clusters often reach six inches in diameter, making it one of the most conspicuous of flowering shrubs. The old-fashioned Snowball, or the sterile form of V. opulus, is rather the most graceful

plant of the three, but the Cranberry Tree, its fertile form, is still more desirable, just as V. tomentosum is more beautiful than its sterile form V. plicatum. The wild form of V. macrocephalum has never yet been introduced to cultivation.

CAMASSIA CUSICKII.—This species was figured in the first volume of GARDEN AND FOREST (see page 174), and experience has proved what was then predicted, that it would be an excellent garden plant. It is perfectly hardy, and after a winter which has proved so disastrous to many bulbous plants this native of the west has been flowering well on spikes two feet high, with sometimes as many as forty narrow-petaled, star-shaped flowers on a single spike. They keep well when cut, and the plant can be commended for this purpose. These flowers are nearly white when they open, but they turn to a pale blue. Like most bulbs this Camassia delights in an open or sandy soil, and it is especially necessary that the bulbs of this species, which are sometimes as large as a hen's egg, should be planted deeply. The common C. esculenta, the edible Quamash of the Indians, is a smaller plant altogether, and not nearly as hardy as C. Cusickii, although it has a variety, Leichtlinii, with creamy white flowers two inches across, large leaves and robust stems, which seems able to withstand our winters without protection. Leichtlin's Camassia, however, does not open its flowers until late in the afternoon and blooms in the evening. C. Fraseri, sometimes called the wild Hyacinth, has an almost naked stem and a short spike

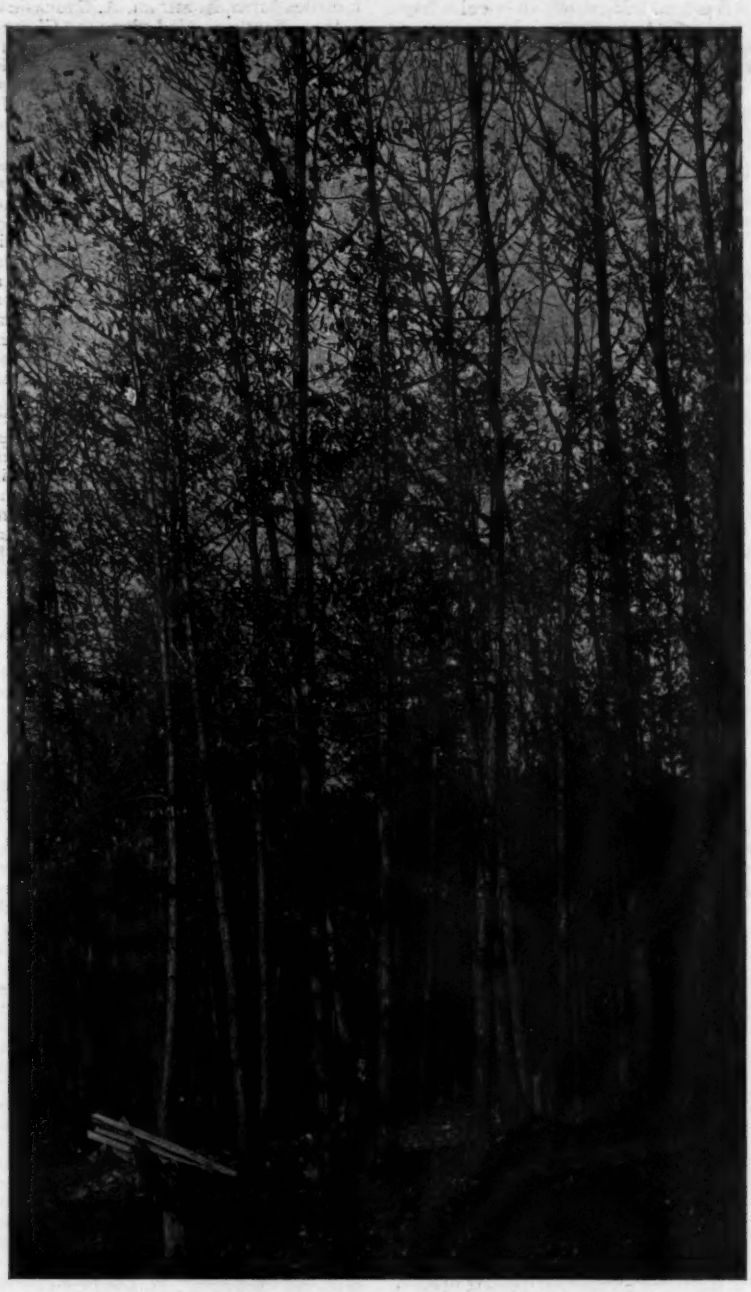

Fig. 34.—Second-growth Chestnut-trees, in West Virginia.—See page 234.

of pale blue flowers at the summit. This species flowers better in full light, but the flowers fade quickly in the sunlight. C. angusta has also been cultivated here, and it makes a good hardy border plant. The Camassias belong to that section of the Lily family which includes the Hyacinth, the Grape Hyacinth, the Star of Bethlehem and the Scilla, to which species it is nearly allied, although it has a stouter habit and a leafy stem. Most of the species have grass-like leaves rising from the base of the stem, and, with the exception of C. esculenta, they are hardy plants which need no extra care or coddling.

Cultural Department.

Notes from the Herbaceous Border.

THE most showy of the early yellow-blossomed Compositæ is Helenium Hoopesii. This compact, handsome plant is perfectly hardy without protection in the winter. Although it grows as freely and is as easily raised as H. autumnale and its varieties, yet it is not so common in gardens. The plants produce seeds freely, and if they are sown early in spring and the young plants are well attended to during the summer and fall they will make good large-flowering plants for the following year. This fine Helenium thrives here in an open position and in a rich open soil. The height of the plant is not much over two feet, but with good culture it attains a height of three feet. Its stems are well clothed with leaves; their sturdiness is very useful in plants of this height, as no staking is needed. Sometimes the flower-heads are produced singly, but oftener several on a stem. The flower-head is of a bright orange color and measures fully three inches in diameter. This is a native plant and was named in honor of Thomas Hoopes, who first collected it.

The Columbines make a fine display now. The genus Aquilegia has many species, and every one, with all varieties, is worthy of a place in any garden. Perhaps the different species belonging to this genus are more easily cross-fertilized than any other in the garden; hence the great difficulty in getting plants true that are raised from seed where a collection is grown. To get the seed true the plants ought to be grown in isolated places, and even then there is no certainty that insects have not been at the work of crossing. In our wild garden, although it is quite a distance away from our general collection of Aquilegias, I see this year that A. Canadensis, the only species grown there, has been cross-fertilized with some other species, probably with A. vulgaris, from the appearance of the flowers and foliage of some of the seedlings in bloom now. The Aquilegias grow freely here, with the exception of A. glandulosa, and this plant never looks happy here. I have raised it several times from seed; the plants grow and blossom once and then dwindle away and die.

The Rocky Mountain Columbine, Aquilegia cœrulea, is, in my estimation, the most delicate and most beautiful species in this lovely genus. It grows here from one to two feet high, the height of the plants varying in different parts of the garden. They are neat and compact, and when two or three are planted in a clump they are very pleasing when in bloom, and before they blossom and afterward the much-divided foliage is distinct and graceful. The flowers are produced plentifully for four or five weeks, and are of a sky-blue color. The sepals are sky-blue, ovate in shape, spreading, and measure fully one inch and a half in length. The blades of the petals are white and about half the length of the sepals, but they are elongated into a long, narrow straight spur which measures nearly two inches in length and is also of a blue color. Most of the plants that are in bloom now of this Columbine were raised from seed which was collected in the Rocky Mountains. It makes a choice border plant, and is also very suitable as a rock-garden plant. A. Canadensis is the most floriferous of all the Columbines. It produces young plants very plentifully in our rockeries from self-sown seed. A. viridiflora, a Siberian species, is not a showy plant, but its flowers are greenish, and therefore of an uncommon color, and it is worthy of a place in the rock-garden. A. vulgaris and all its varieties grow well here. At this time a small bed of plants that were raised from seed last year is making a very pleasing display. This showy plant is as much at home here as it is in Europe. It grows just as well under the shade of trees as it does where it gets plenty of sunshine. There are many varieties of this Columbine, and most of them have pleasing colors. Some of the double-flowered varieties are very showy. A. atropurpurea makes a bold plant, growing to the height of two feet or more, and it has dark purple flowers measuring about one and a half inches in diameter when fully expanded. It makes a good border plant, growing freely in a light, rich soil. The double-flowered A. Sibirica is useful when planted in the second row from the front of the herbaceous border. Our plants are about eighteen inches high, and the erect, dark purple double flowers are very distinct from all the other Columbines. There are many others in bloom, such as A. cœrulea lutea, A. attrata, A. Caucasica and A. oxyacantha.

In a slightly shaded place the Globe-flowers have been blossoming for two or three weeks. They grow best here in a deep, rich, damp soil. Trollius Asiaticus has a compact habit and a height of twelve to fifteen inches, and it bears its golden-yellow flowers in great abundance. This plant does not produce seed readily, but it is easily increased by division of the roots. It comes from Siberia and is quite hardy here. The European Globe-flower, T. Europæus, blossoms also at this time. Before its flowers appear the plant looks like a Ranunculus, but when in bloom it is easily distinguished by its pale yellow globular flowers.

The Snowdrop Anemone, A. sylvestris, is a compact, perfectly hardy and very reliable perennial. Its large pure white flowers are produced singly above the foliage. A. Pennsylvanica is not very satisfactory as a border plant, but in the wild garden it makes a splendid mass of white. It ought to be given plenty of room, as it spreads rapidly after it gets established. The Japan Anemones have proved very unsatisfactory here for the past two years. Many of our plants have been winter-killed.

The beautiful Iceland Poppies are very floriferous. They do not thrive as well here in the border as they do in the rock garden. To have them at their best in the border the ground must be well drained, so that water will not remain about the roots in winter. They multiply rapidly here from self-sown seed.

For an early summer-flowering plant nothing in the border has the grace and beauty of well-grown specimens of Dicentra spectabilis. Not only has this plant beautiful flowers, but it has handsome Fern-like foliage. Like many other perennials, it does not show its beauty and habit well until it gets large and well established. Some of our plants measure four feet in diameter, and they are exceedingly handsome when in flower. It is so common that many persons affect to despise it, but there is no other plant which can fill its place at this season.

In an open position in the rock garden a large patch of the hardy and free-growing Erysimum pulchellum is completely covered with sulphur-yellow flowers, which give a welcome distinctness of color along the front row of the herbaceous border. When it is in blossom the plant measures about a foot in height and is very compact in habit.

Lunaria biennis, hardy biennial, as its name implies, and better known by its common name of Honesty, is well worth growing for its large terminal racemes of violet-lilac flowers. After these are gone the silvery flat seed-pods are ornamental. The color of the flowers is uncommon among hardy plants at this time, and they are a very welcome addition. Plants raised from seed in spring if planted out in the garden in light warm soil bloom the succeeding summer.

The Horned Pansy, Viola cornuta, and its varieties are blossoming now, and will produce more or less flowers all summer. V. lutea is another hardy Violet that grows well here and blooms all summer. V. Munbyana was raised from seed last year and planted out in the border. It lived through the winter unprotected, and has been in flower for the past month. It is a strong-growing plant and has violet-colored flowers as large as those of V. cornuta. It is an Algerian plant. Another beautiful little Violet now in flower is V. declinata, var. losisepala. The seed of this plant came from Sweden last year. It has proved quite hardy here, and in a slightly shaded spot it is blossoming freely. It is a low plant, about six inches high, and has small Pansy-like flowers. The color of the flowers is very uncommon, it being of a dark pink.

Along the front row of the border there are some compact dwarf plants of Gypsophila repens, producing immense numbers of small white airy flowers. This is also an important plant for the rock garden. The rosy pink flowers of large masses of Saponaria ocymoides contrast well with the white ones of this Gypsophila. Cerastium arvense makes a fine mat of white close to the ground, but if used in the border it must be kept within bounds. A near relative of the Cerastium is Stellaria Holostea, which makes a much better plant for the front row of the border. In fact, it is the best dwarf white-flowered plant we have in the border since Arabis albida ceased blossoming.

Although Linum perenne is not a very robust plant here, when it once gets established it makes nice shapely plants,

which are crowned with fair-sized flowers of a pale blue color. A white-flowered variety in bloom seems to be more robust than the typical plant, and is very attractive.

Thermopsis mollis is not often seen in gardens. Although it comes from the mountains of south Virginia and North Carolina, it is quite hardy here, and gives perfect satisfaction. Its habit is almost perfect. When well established it makes compact bushy specimens a yard high. The flowers are yellow and produced in long, nearly erect racemes, and they last in good condition for two or three weeks. In a slightly damp soil and away from the shade of trees it grows freely if not too often disturbed.

The best early Salvia is S. pratense, a handsome European plant, which grows as freely as our commonest weeds. It is about two and a half feet high, and the flowers are produced in whorls of four to six flowers in spikes from twelve to eighteen inches long. The corolla is bright blue and measures one inch in length, the upper lip being much arched and the lower one broad. There is also a white form of this plant in bloom which is showy, making a good companion for the blue one. This, too, is a thrifty plant, growing well in any common garden soil.

The Japanese Primula Sieboldii is one of the most satisfactory and one of the most decorative of Primroses. It grows best in a warm sheltered position, where it is covered with leaves in the winter. The flowers last much longer in a place where the sun does not strike them during the hottest part of the day. There are some large clumps of this Primrose now at their best, and much admired by visitors. Since it was introduced from Japan in 1865 many varieties have been raised. The flowers measure more than an inch across and are produced in umbels on stout stems from nine to twelve inches high. Each variety has a different shade of color, and those grown here are of different shades of rose. The roots creep just below the surface of the soil, and they form buds, thus giving an easy means of increasing the plants, and if it is provided with a good situation and proper soil this Primrose grows rapidly.

Botanic Garden, Harvard University. *Robert Cameron.*

Flower Garden Notes.

THE recent showers have made a great improvement in the borders and made it possible to plant out annuals to be added at this time for effects later in summer, when most of the perennials are past. This arrangement has, in past seasons, proved desirable for the best results during the entire season. Mixed borders are superseding herbaceous borders and include bulbs for the early spring. A border made up in this way will be interesting from April until November frosts.

The best feature of the garden now is the set of the more recent Japan Tree Pæonies. We have added twenty of these, and they are a great advance over the older ones, which are mostly shades of pink, and I suspect are in many instances nothing more than the stock used by the Japanese for grafting. The newer varieties are of all colors, from pure white to deep rose, and some are single, beautiful, large cup-shaped blossoms of purest coloring. They are a decided acquisition in the garden at this time, and, no doubt, will prove as hardy as the older varieties. It will, however, be safer to draw the earth about the stems in the fall for the first year or two, to avoid loss, before they are well established. I find that all of these plants are grafted, cleverly as usual by the Japanese gardeners, but they do not seem to have been wise in the selection of the stock; it shows decided tendencies to sprout from the roots. These sprouts would soon choke out the better scion if allowed to grow, and planters must use care that this does not occur. This is the only thing that can be said against these plants, and it may be remedied in later importations by the use of some stock that is not so apt to send forth shoots from adventitious root-buds.

The hardy native Orchids are mostly intractable under cultivation, beautiful as they are when growing wild. They all need special care in the selection of positions in the garden if any success is to be had. Two of the Cypripediums are quite reliable, or at least we have found them so for the past five years, planted on the shady side of the Rhododendron beds. C. pubescens is now beautiful, and C. spectabile will follow later. The latter is the most lovely native Orchid, and few exotics of this genus can compare with it. It is all the more satisfactory to know that it can be cultivated in gardens in moist black soil, such as Rhododendrons delight in.

Baptisia exaltata is now fine. It is not a common plant, though B. australis is often seen in gardens. B. exaltata is much taller, with larger flower-spikes, and is altogether the better plant. It is a good companion to the Lupins that are now at their best. Lupinus polyphyllus gives a great variety in itself, the white form being in pleasing contrast with the various shades of blue and purple. I find it is necessary to save seeds of the best varieties and sow them. The parent plants seed freely, and these seeds germinate in the borders, but the self-sown plants deteriorate and the better varieties are soon lost in this way.

Many of the earlier-flowering plants are dying down now, and it is a good opportunity to plant near these such annuals as are desired to cover the space for the balance of the summer. The frequent showers will enable them soon to take root, and little care will then be needed in the borders, except to keep down weeds.

South Lancaster, Mass. *E. O. Orpet.*

Herb Robert.

COMPARATIVELY few flowering plants mingle well with Ferns on rock-work or in the wild garden. Of these our native Herb Robert has no superior. Its dainty pink blossoms peeping out here and there among cool green fronds add just the warmth of color needed. The chief beauty of the plant is in the delicate design and varying color of its much-divided leaves, which are pale green in early summer, deepening into richer tones as the season advances, but always fresh-looking. Leaves with rich autumn colors are to be found at all seasons, and they often tempt the botanist to a hard climb for an unknown blaze of color just out of reach. For indoor culture the plant has considerable merit. In December a few young plants which had been frozen stiff were taken indoors; none of them wilted and nearly all proceeded to grow with more or less enthusiasm. One of them on a platter with Mosses and Ferns, and left pretty much to itself, was a great success, and its branching stems attained a spread of forty inches with no care save an occasional sprinkling and clipping of seed-pods before they matured. Herb Robert attracts us to-day by its delicate beauty, but the old naturalist valued it chiefly because of its supposed medicinal "vertu" in the disease known as "Sir Robert's Plague," from which it is said to have derived its name, Geranium Robertianum. The significance of Cranesbill is obvious. The Scotch Highlanders are responsible for the uncouth title of "Red Shanks," given in reference to the lovely red stems which support the leaves. Another name of grave significance for this shy wilding is Death-come-quickly, and in Northumberland lore to uproot or find a plant uprooted is considered a forerunner of fate.

Pittsford Mills, Vt. *G. A. Woolson.*

Correspondence.

Notes from West Virginia.

To the Editor of GARDEN AND FOREST:

Sir,—Our Japanese Weeping Cherry has been flowering ever since its proper blooming time in April, and is in blossom in June, when our sweet cherries are ripe. In April the lower limbs hung out a few half-blighted blossoms, while the upper part of the tree showed no signs of life. It was badly injured by the cold of last winter, but has been gradually recovering and opening its flower-buds from the lower limbs upward, until now only the top of the tree is bare. The blossoms are a sickly pinkish white, and open a few at a time as the tree recovers strength. Thunberg's Spiræa failed to bloom from the same cause, but the Double-flowering Peaches were very fine. Hard-shelled Almonds bloomed, and so did Nectarines, while Apricots of the same age, and in the same enclosure, did not have a flower. Magnolia Kobus and M. Soulangeana were full of bloom at the usual time, showing their great power of enduring cold. Paulownias seldom flower with us, and only after an unusually mild winter. This year only a few of the flower-buds matured, a cluster of buds displaying but one perfect flower, the rest shriveling up without opening.

In spite of the vagaries of the weather, it has been a good season for gardening purposes, and the Roses are unusually beautiful and profuse. A group of Penzance Sweetbriers planted this spring and last year is making rapid growth. These hybrid Sweetbriers are not as fragrant as the type, and the flowers must be beautiful, indeed, if they are really an improvement on the Eglantine. The latter is now sprinkled with its dainty pink cups, to be succeeded later by showy pips, which give it a new beauty even when winter shall have robbed it of its last fragrant leaf.

Sweet Williams are making the flower borders bright and gay. There are almost too many magentas and dull crimsons among them, but the light and the bright pinks and the deep

red kinds, mixed with the white and Auricula-eyed varieties, make a very cheerful group. The Sweet William is one of the flowers that one associates with cottage gardens and with thrifty and happy homes. It appeals to old association, to memories of our youth, and flourished along with hardy Pinks, Columbines, Everlasting Peas, Lilies-of-the-valley and Wallflowers in the gardens of our childhood. No rare novelties will ever quite take the place of these old favorites.

The early Mock Oranges are out of bloom, but a very beautiful specimen, which was labeled Philadelphus Yokohama when it came from the nurseries, is now flowering profusely. Its bloom is delicately fragrant, and the flowers are larger and of a purer white than the commoner kinds. The expanded flower measures an inch and a half across. This Philadelphus is one of the most beautiful shrubs at Rose Brake.

In the wild and rock gardens the Yellow Lilies are still very showy, and the Orange Lily is very effective in a bold group against a background of shrubbery. The cold, damp weather of last May lengthened the blooming period of this Lily, which has been flowering for three weeks, but is now nearly over. More delicate beauties are the little groups of Tunica Saxifraga and the pretty pink Lychnis Flos-cuculi, which also remains in bloom a long time.

Honeysuckles and Roses are making the air fragrant, and one opulent Magnolia, M. glauca, with its rich odor and creamy cups of bloom, claims our admiring homage as queen of the week.

Shepherdstown, W. Va. *Danske Dandridge.*

Some Rare Erythroniums.

To the Editor of Garden and Forest:

Sir,—In 1891 the late Sereno Watson published his revision of the American Erythroniums. Mr. Watson gave a very careful study to the subject, and his work gives the student a safe guide, although in one or two instances his species seem so close together that only the skilled observer can distinguish them. No really new species have been added since Watson's revision, but several good color forms have been brought to light, of which Erythronium Johnsonii is the most notable addition to the flower garden. It is to be expected that a thorough exploration of the forests of the Pacific slope will bring to light many color forms, if not new species. Few know what vast tracts of the north-west have never been explored at all by trained botanists. Nothing emphasizes this so much as the fact that many species collected by the early explorers have been lost sight of and have come to be considered as mythical. I have found several species of great beauty which were not in any of the great herbariums and were thought to be errors of the authors. Even in localities near the homes of skilled observers, species are sometimes so local as to be easily overlooked.

Perhaps the most striking of the Pacific coast Erythroniums is the group related to E. revolutum. Only one of this group is much known in our gardens. E. revolutum, var. Bolanderi, better known as E. Smithii, has long been in cultivation. Of the others, a few of E. Johnsonii were sent out last year, and the rest are unknown in the garden.

To be appreciated properly the Erythroniums should be seen in their own homes; in the shaded cañons among the wood plants, with their mottled leaves of immense size, almost as beautiful as the flowers, and their tall graceful scapes and lovely lily-like flowers, I can imagine no more beautiful mass than a large bed of these Dog-tooth Violets.

In all of the Revolutum group the leaves are mottled; in the type and Erythronum Johnsonii the mottling is in rich brown or mahogany; in the others in green and white. As compared to the E. giganteum group, the scapes are stout, the flowers have more substance, and the petals, while recurved, yet more widely spreading; the stamens have broad awl-shaped filaments, and the auricles at the base of the inner petals are very prominent in all of the group and pressed closely to the filaments. E. revolutum and its varieties are hardly as graceful as the exquisitely formed E. giganteum (E. grandiflorum of our gardens), but excel it in the substance and coloring of the flowers.

Erythronium revolutum (type) is a plant of medium size, leaves mottled in mahogany, scape one to three flowered. In color it varies from almost a pure white, with a most delicate greenish caste and brown and purple markings at base of petals, to a rich yellow similarly marked.

Erythronium Johnsonii is in leaf and habit the same, except that in my own garden it is one-flowered. In coloring the flowers are a bright clear red, shading to dark red toward the middle, and the centre a fine orange.

Erythronium revolutum, var. Bolanderi (E. Smithii), is a native of the Redwood forests of the northern part of Mendocino County, California. Its northward range has not been determined, as from its own habitat an almost unknown (botanically) region stretches to the north. This species is of low habit, the leaves mostly mottled in white, seldom more than one-flowered, and the widely spread blossoms opening a pure white and at last becoming purple.

I had the pleasure this spring of discovering a new variety of Erythronium revolutum, or, perhaps, only rediscovering this beautiful plant. Its leaves are mottled in white and green. The scapes, as I saw them in large beds, were tall, ranging from ten inches to nineteen inches high. The petals are narrower than in the other forms of E. revolutum. Of those seen a very few were white, deeply suffused with pink, on opening, and soon changing to a deep wine-purple. In by far the greater number of instances they opened up a delicate pink, and turned while still fresh to wine-purple. This is the largest of the group.

Its home is in the Redwood region of Mendocino County. In a note in his revision Watson says about Erythronium revolutum: "Described by Smith as having purple flowers, and an original specimen in Herbarium, Kew, bears the note by Sir W. J. Hooker, fl. rubr. purp., but it is rarely that the petals assume the purple tinge in drying, and the ground for the statement is unknown. No purple-flowered species is now found on Vancouver Island where Menzie's specimens were collected."

My new form corresponds very closely to Smith's description, and I have no doubt is identical. It is certainly strange if the counterpart of a species collected over a hundred years ago, and not since seen, should be found so far away.

Ukiah, Calif. *Carl Purdy.*

The Increase of Redwood Forests.

To the Editor of Garden and Forest:

Sir,—In an article in your paper a few years since I called attention to the rapidity with which the woodlands in the Coast Range of northern California are encroaching on the grassy and brushy portions. Close observations since and conversations with many observing people confirm my statements. A point upon which I did not then touch was recently brought to my notice in a conversation with an intelligent pioneer. The Redwood forest of to-day is a tangle underfoot and a mass of broken limbs and fallen trees, all overgrown with Huckleberries and various Ceanothus and other undergrowths, which make travel, except by roads or trails, almost impossible across country. The pioneer referred to tells me that in the earlier days a man could go by horseback from the valleys in the interior to the coast in almost any direction, as the woods were almost free of undergrowth. He was told by the Indians then that they made a yearly practice of firing the grass—I presume, both to drive out the game and to clear the way. Now roads in every direction cross the forest belt, and the interests of the settlers are against sweeping fires, so that they are becoming less frequent with each year.

Here in the valleys the interest of every sheep rancher is against fires, and they do not sweep through close-cropped ranges as they did when the grass grew waist-high.

Ukiah, Calif. *Carl Purdy.*

The Wild Garden.

To the Editor of Garden and Forest:

Sir,—No spot in the flower garden yields me as much pleasure as that which is devoted to the native plants which I gather from the woods and fields. While the Crocuses were yet in bloom, the snow-white blossoms of the Bloodroot appeared, quickly followed by the Dog-tooth Violet and the beautiful little Dicentra cucullaria, or Dutchman's Breeches. Soon after these followed two species of Trillium, and then the sky-blue Lungwort, Mertensia Virginica, with Phlox polemonium and different Violets. By the middle of May the feathery spikes of Tiarella were giving place to the graceful native Columbine and Sweet Cicely. Aside from the beauty that this plot furnishes, here is an opportunity for studying the habits of various plants which one does not enjoy unless they are constantly under the eye. The most interesting problem is the constant struggle for existence or for mastery among them. If let alone, the wild Columbine, Viola cucullata, Thalictrum cornuti, Geranium maculatum, Lysimachia quadrifolia and Onoclea sensibilis will soon smother out their neighbors. Lungwort, Bloodroot, Moon Seed, some of the Vetches, Spring Beauty, Dog-tooth Violets, some of the Ferns like Osmundas and

Aspidiums, will increase rapidly, and yet they are not objectionably aggressive. Trilliums, the low Phloxes, Cypripedium pubescens, Lilium Canadense, Dicentras and the delicate Maiden-hair Fern will increase more slowly, and yet at a sufficient rate to show that they are permanently established. Of course, to keep up the variety one must be constantly thinning out the more aggressive varieties and give aid to the more modest ones.

Harmonsburg, Pa. *B. L. P.*

Recent Publications.

The Bamboo Garden. By A. B. Freeman-Mitford, C. B. Illustrated by Alfred Parsons. Macmillan & Co.: London and New York.

In the great family of Grasses there is no more interesting group than the Bamboos, some of them giants a hundred feet or more high and others pigmies of the humblest proportions, but all distinguished by a characteristic grace which makes them as beautiful as they are generally useful in the regions where they thrive and where the whole social and industrial economy of the people are associated with and dependent upon them. Where they abound they largely help to give character to the scenery, but here in the north there are hardly more than half a dozen which are reliably hardy. In the soft and moist airs of England a greater number of species will thrive, and all who are familiar with current garden literature have read the instructive writings of Mr. Mitford in the London *Garden* and elsewhere. He has been an enthusiastic student and cultivator of all these plants that can be made at home in England, and this beautiful book is the result of his many years of labor. It has been illustrated by Mr. Alfred Parsons, whose drawings give a fair idea of the decorative quality of the different species. We cannot help but think, however, that it would have been better to have something more accurate, even if less artistic figures that would, at least, enable one to identify the various species. Even the reproduction of photographs would have been more useful in a treatise of this sort, although these always lack something of æsthetic value. Chapter I. gives an interesting account of the plants in general and of their characteristics, especially as they appear in cultivation; and this is followed by minute directions on the methods of propagation both by seed, by division, by cuttings from the base of the culm, and by pieces of the rhizome. In writing of the choice of position, Mr. Mitford not only explains the quality of the soil, exposure and cultivation which the plants need, but he explains how to plant them for producing the best effect. On this point he says: "A good background is of the first importance to show off the beauty of the Bamboo. A bay in a clump of Hollies or conifers will afford a most appropriate setting. The tall columns waving their dainty green foliage against such a backing under a gentle summer breeze are the embodiments of all that is graceful, while the tender leaves look like a flight of delicate green butterflies hovering in the air. A group planted on a lawn may be effective, but Bamboos are seen at their best when their bending columns are shown in contrast against softer and darker foliage." It may be added that suggestions of this sort as to methods of planting in an effective manner are scattered all through the book, so that there is much useful instruction on the general arrangement of gardens and the views are almost invariably sound. The greater portion of the book is taken up with a description of species, beginning with those which are natives of China and Japan. These are by no means dry botanical details, but an effort to give descriptions of these plants that will indicate their value for ornamental coloring, although every paragraph shows careful study of their habits and observations which are of genuine scientific value.

Mr. Mitford thinks that these plants are destined to become much more largely used in extra-tropical gardens than they have ever been. He calls attention to the fact that the famous gardeners laughed at him when he began to plant his newly imported and starveling canes, but unexpected success has attended his efforts at acclimatization, and he thinks that there are many other species than those we now grow which can be made to beautify our gardens. There are Bamboos growing high up on the Himalayas which are only known by herbarium specimens, and one species, at least, in the Andes grows at an altitude equal to that of the summit of Mont Blanc, and he thinks there are many others waiting to be discovered on mountain heights where ice and snow are at home. He notes the fact that all the Bamboos that have proved hardy in England have the veins of their leaves checkered or tessellated, and by something of a coincidence the hardiest of the Palms also have tessellated leaf-veins. He thinks, therefore, that whenever a Bamboo is found at a great altitude, at least high enough to be surrounded by non-tropical vegetation, a leaf structure of this kind will be almost a guarantee of its hardiness.

A delightful chapter is one entitled Apologia pro Bambusis meis, which is a justification for his passion and a plea for his reeds. He objects to that affectation of severe taste which would banish everything from English pleasure-grounds but English shrubs and herbs, and yet he plainly belongs to those who see in the teachings of the architectural school of gardening a menace to what he considers the more beautiful and effective way of planting. Many readers will sympathize with his criticism of the "acres of paving-stones surrounded by balustrades, and bespattered by jets of greater or less size, which were dear to the French architects." Perhaps we cannot better conclude this review than by adding some other quotations.

In these heavy masses of masonry there is only dignity for those who admire that which is costly. The poetry of gardening lies in another direction. Who can conceive a Dryad making her home in an Orange-tree incased in a green wooden tub? What nymph who respects herself would bathe her dainty limbs among the glorified squirts of Sydenham? Another test: Could a painter paint these formal gardens of ashlar? Could a poet find inspiration in them? Would Saint Bernard say of them what he said of the woodland: "Aliquid amplius invenias in sylvis quam in libris"?

He who would lay out for himself a paradise—I use the word in old Parkinson's sense—cannot do better than to set out to drink in wisdom in Japan. Not in the Japanese gardens, for nowhere is the gardener's work more out of tune with Nature than in that country of paradoxes; but on the mountain-side, in the dim recesses of the forest, by the banks of many a torrent, there the great silent Teacher has mapped out for our instruction plans and devices which are the living refutation of the heresies of stonemasonry. There are spots among the Hakoné Mountains of which the study of a lifetime could hardly exhaust the lessons. The sombre gloom of the Cryptomerias, the stiff and stately Firs, Pine-trees twisted and gnarled into every conceivable shape, flowering trees and shrubs in countless varieties, combined with the feathering grace of the Bamboo, and all arranged as if the function of each plant were not only itself to look its very best, but also to enhance and set off the beauty of its neighbors, present a series of pictures difficult to realize.

The Japanese are true lovers of scenery; no people have a keener feeling for a beautiful landscape; to them a moon rising over Mount Fuji is a poem, and their pilgrimages to see the Almonds in blossoms, or the glories of the autumn tints, are almost proverbial, and yet, strange to say, in their gardens they seem to take a delight in setting at defiance every one of those canons which Nature has laid down so unmistakably for those who will be at the pains to read them. The Japanese garden is a mere toy that might be the appanage of a doll's house. Attached to some of what were the Daimios' palaces in the old days there were some fine pleasure-grounds, well laid out, rich in trees and daintily kept. The gardens of the Mikado, by the shore of the bay of Yedo, are beautiful. But the average Japanese garden is such as I have described it—a mere whimsical toy, the relic of an art imported from China, and stereotyped on the willow-pattern plate. . . . .

The truth is that in every good garden there is a poetical or spiritual beauty with which these crude and flaunting artifices (topiary work, grottoes, carpet-bedding and the like) are out of tune; the air which breathed o'er Eden still in some mystic sense pervades our groves. "God planted the first garden"; and if man was formed in His image, may we not believe that certain more favored spots still reflect the idea of that first Divine Garden? To catch the spirit of these is the supreme

art of the gardener, and leads him to the realization of the next proposition of the text, "the purest of human pleasures."

I look upon gardening as one of the fine arts, and, rightly understood, not one of the least difficult. The painter or the sculptor makes his effects at once, and obliterates, or models and remodels, until he has attained that at which he is aiming. But the gardener has to consider, not what his work is now, but what it will grow into ten, twenty, fifty years hence. He has to take into account, not the present aspect of his materials, but what are their capabilities in the future and their relative powers of development. If he has a background ready made to his hand he is lucky, but if he has to make it he has to do so with trees which are mostly far slower of growth than the more immediately effective plants which it is their office to set off. He has to balance questions of soil, light, moisture. All this involves not only the poetic sense, but also great and patiently acquired knowledge. He has no Alladin's lamp wherewith to bid trees spring from the earth and form a sheltering background, yet background is the soul of all gardening, rarely, alas! seen at its best by him who has devised it. If the background be unfitting all the work is thrown away. Color, form, light and shade, grouping, all have to be studied in the composition of one of those living pictures which the gardener paints with living materials.

Notes.

An examination of trained and experienced gardeners for positions in the New York Park Department will be held on Friday, June 12th, by the New York City Civil Service Boards. Application blanks may be had at the office of the Board in the new Criminal Court Building.

The people of New York city have again shown their appreciation of open spaces in the general protest against the plan to build a public bath-house in Tompkins Square, and a detached section of the recently condemned blocks at Division, Suffolk and Hester Streets has been set aside for the building which would have destroyed the park-like character of Tompkins Square.

From September 1st, 1894, to August 31st, 1895, Sicily sent to the various ports of the United States 2,047,000 boxes of lemons. From September 1st, 1895, to May 31st, 1896, the receipts were 2,057,000 boxes, or 10,000 boxes more for nine months than for the entire previous year. During the same nine months 678,000 boxes and 156,000 cases of Mediterranean oranges were imported, probably 200,000 boxes less for this year than for the twelve months ending August 31st, 1895.

The New York Florists' Club and New York Gardeners' Society announce a flower show, to be held at the Newsboys' Home, on Duane Street, this city, June 20th. The exhibits will practically be contributions, since they will be distributed among some 20,000 children after the show. Many commercial growers have arranged to exhibit bedding plants, bulbs and seeds, and persons who do not care to enter into competition are invited to send plants and cut flowers for distribution. Schedules of classes of exhibits and other information may be obtained from James I. Donlan, Secretary Exhibition Committee, 51 West Twenty-eighth Street, New York city. The express companies have generously agreed to carry the exhibits and contributions free of charge.

At the recent meeting of the New Jersey Forestry Association, Mr. Fernow called attention to the fact that this state was once well wooded everywhere. If at that time the virgin timber on such soils as were not fit to be made into farming-land had been cut with care and systematically, and the fires kept out, it would produce now and continue to produce forever an income of not less than $5,000,000 to $10,000,000 annually, giving employment to a large number of people. Now, through the mismanagement of former years, the 2,500,000 acres of land unfit for anything but wood crops do not yield $1,000,000 of values, or less than one-tenth of what they would yield under management. Few persons realize what the wood crops mean in the economy of a nation.

Hemerocallis flava, or, as sometimes called, the yellow Day Lily, is still opening its pure colored flowers, and when seen near a group of white Pæonies, or among the gray-blue and purple varieties of the German Irises, no combination can be more beautiful. This is an old plant, but one of the most useful in the herbaceous border. All it wants is room, food and sunshine to make a magnificent display. The individual lily-like flowers last but a single day, but the buds will open in water, so that a single stalk will last a long time. A large vase filled with a mass of these long-stemmed flowers makes a really imposing display. Almost as good in color and form, and flowering a month or so later, is H. Thunbergii, which is less common, but quite as desirable. There are several other species in cultivation of varying merit, but all are good.

From fifty to a hundred car-loads of strawberries are shipped every day from Hammonton, New Jersey, and as raspberries and blackberries come into market the output will be still greater. It was formerly the practice of the berry-farmers in southern New Jersey to send their fruit to commission men individually, but under that system berries often came into Philadelphia, the nearest market, when it was practically full, so that whole car-loads were often dumped into the Delaware River because there was no demand for them. In later years, however, a coöperative union has been formed here as well as in many of the other districts where small fruits and orchard fruits are grown, and all the product goes through this organization. These unions keep in communication with all the markets of the country, and they are prepared to ship the fruit where it is in most demand, so that hundreds of crates are sent from New Jersey as far west as Chicago, and, indeed, the largest profits are often realized from these long shipments. Philadelphia is so largely supplied by berry-fields close at hand that shipments to New York, and even to Boston, from Hammonton are large in comparison with those to the nearest important city.

Peas from Long Island sell for thirty-five cents a half-peck. Asparagus, from New Jersey and other near-by points, costs twenty to thirty cents a bunch, and cauliflower from the same sections fifteen to twenty-five cents a head. New beets, carrots and turnips from this state may be had for five cents a bunch. Squashes from South Carolina cost ten cents each, and cucumbers from the same state are plentiful and command but thirty-five cents a dozen. String beans from Virginia sell for thirty-five cents a half-peck, and sweet potatoes or yams, from Florida, at the same rate, the Vineland supply being, of course, exhausted. Celery, from Florida, is succeeding the northern and western crops, and costs twenty cents a single stalk. Okra at ten cents a dozen, and eggplants at twenty-five cents each, come from Louisiana, and tomatoes from Florida and Mississippi. The latter cost fifteen cents a pound, the hot-house product selling for double that price. The best Bermuda potatoes bring thirty-five cents a half-peck, and onions from the same islands cost ten cents a quart. The largest cargo of Bermuda onions received this season arrived last week, when the steamer Trinidad discharged 40,000 crates, and 32,000 crates were due by the steamer Muriel on Monday of this week.

Nine car-loads of California fruits were sold in this city last week, mostly cherries. The variety Royal Ann, known also as Napoleon Bigarreau, brought the highest prices, and other well-known sorts were the white-fleshed Cleveland Bigarreau, sweet and of rich flavor; the handsome amber-colored Rockport Bigarreau, with red markings; Centennial, beautifully marbled and splashed with crimson on a pale yellow ground; the favorite dark cherry, Black Tartarian; the somewhat later Black Republican, the excellent English variety, Black Eagle, and May Duke, Queen Victoria, Purity and Governor Wood. Apricots of good size and coloring now in our markets are the French variety Royal, perhaps the most popular apricot in California. The large, slightly oval fruit has a dull yellow skin and orange cheek tinged with red. The stone is free, and the firm juicy flesh has a vinous flavor. The Newcastle, more brilliant in color, is also seen, and the small Pringle, valuable mainly for its extreme earliness. Alexander peaches are coming from California, large and attractive, and Clyman plums, mottled reddish purple, with beautiful blue bloom. During last week 119,700 bunches of bananas were sold at the wholesale auctions in this city. Blackberries, huckleberries, cherries, peaches, plums, apricots, muskmelons and watermelons make an attractive display on the fruit-stands. The showiest strawberries seen here in several years are immense specimens of the variety Mary, from Essex County, New Jersey, and a new seedling from Virginia. The former is of a deep rich color, fairly regular in size, the largest measuring six inches around at the stem-end. Twenty of the fruits fill a quart box, and these sold on Monday at thirty cents. The seedling from Virginia was equally large, perhaps less even in form, lighter and more brilliant in color and less firm. Great American is another beautiful berry now in season, large, remarkably even and regular in form and a rich color. These berries sold for twenty cents a quart. Peaches are now coming from Georgia and Florida, the latter state sending the best which have ever come from that region. These sell at $1.00 for a box containing twenty-five fruits.